![Extron Electronics logo] **Extron® Electronics**
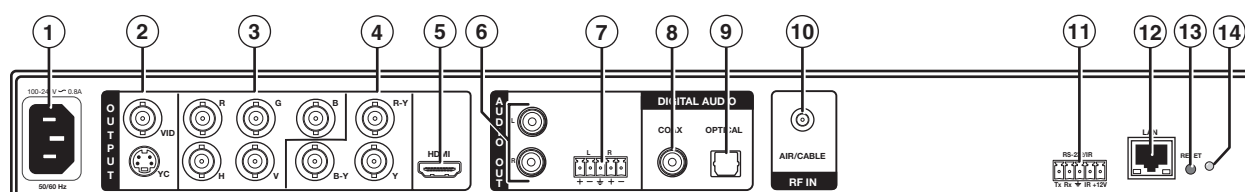INTERFACING, SWITCHING AND CONTROL

AVT 200HD Tuner • Setup Guide

IMPORTANT:
Refer to www.extron.com for the complete user guide and installation instructions before connecting the product to the power source.

The Extron AVT 200HD is a high performance tuner that receives ATSC over-the-air broadcast signals and delivers high-definition television (HDTV) video simultaneously on HDMI®, RGBHV, and YUV outputs. It outputs pulse code modulation (PCM) stereo or Dolby® Digital surround (AC-3) formatted audio signals with simultaneous S/PDIF digital and analog balanced and unbalanced stereo. The AVT 200HD also provides clear QAM (unencrypted) cable (CATV) decoding and standard definition video outputs. Additional integrator and user-friendly features include a multi-function on-screen display and channel presets.

This guide provides instructions for an experienced installer to install and connect the AVT 200HD tuner.

> **NOTE:** For full installation, configuration, and operation details, see the *AVT 200HD User Guide*, available at **www.extron.com**.

Rear Panel Features and Connections

① AC power connector
② Video outputs: composite video and S-video
③ RGBHV video output
④ Component (HD YUV) video output
⑤ HDMI video output
⑥ Audio output, analog RCA
⑦ Audio output, analog captive screw

⑧ Coax: digital audio output, RCA coaxial
⑨ Optical: digital audio output, fiber optic
⑩ RF In air and cable input
⑪ RS-232/IR connector
⑫ LAN port
⑬ Reset button
⑭ Reset LED

Installation Steps

1. **Disconnect power** from the tuner and turn off all other devices that will be connected to it.

2. (Optional) **Mount the unit in a rack.** Rack mount the tuner using the supplied brackets (see the illustration at right).

3. **Connect the RF input.** Connect an antenna or a CATV cable to the RF In F-type connector (⑩ on the rear panel diagram above) for over-the-air or cable radio frequency input.

4. **Connect the video output.** Connect an output device to one of the following video output connectors:

   • **VID** — Connect a composite video device to this BNC connector (②, top). Supports 480i resolution.

   • **YC** — Connect an S-video device to this mini-DIN connector (②, bottom). Supports 480i resolution.

   • **RGBHV** — Connect an RGBHV output device to these BNC connectors (③), shown at right. This output supports 480i, 480p, 720p, and 1080i resolutions.

   • **Component video** — Connect an HD YUV output device to these BNC connectors (④), shown at right. This output supports 480i, 480p, 720p, and 1080i resolutions.

Rack Mount Bracket

VID

YC
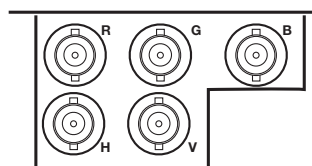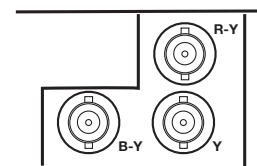
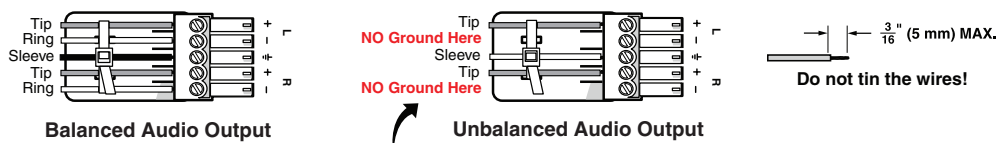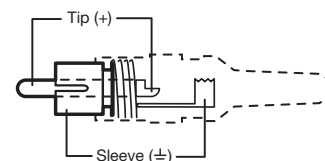RGBHV Connectors   Component Video Connectors
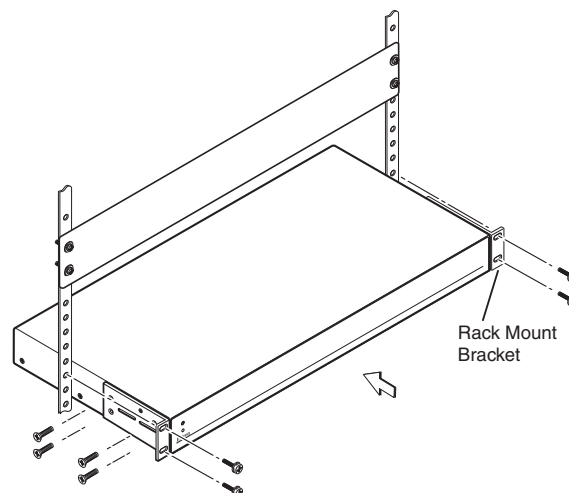
- **HDMI** — Connect an HDMI output device to this HDMI connector (⑤ on the rear panel diagram on the previous page) for digital video output. Supports 480p, 720p, and 1080i resolutions. See the table below for pin assignments.

Pin	Signal	Pin	Signal	Pin	Signal
1	TMDS data 2+	7	TMDS data 0+	13	CEC
2	TMDS data 2 shield	8	TMDS data 0 shield	14	Reserved (NC on device)
3	TMDS data 2–	9	TMDS data 0–	15	SCL
4	TMDS data 1+	10	TMDS clock+	16	SDA
5	TMDS data 1 shield	11	TMDS clock shield	17	DDC/CEC ground
6	TMDS data 1–	12	TMDS clock–	18	+5 V power
				19	Hot plug detect

HDMI
Type A Receptacle

HDMI
Type A Plug
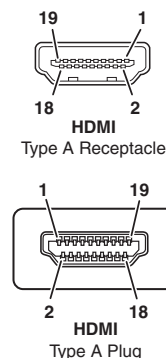
5. **Connect the audio output.** Connect a speaker set, amplifier, receiver, or other audio output device to one or more of the following connectors:

- **RCA** — Connect an audio output device to these RCA connectors (⑥) for unbalanced analog audio output as shown at right.

Tip (+)

Sleeve (⏚)

- **Captive screw** — Connect an audio output device to this 5-pole captive screw connector (⑦ on the rear panel diagram) for balanced or unbalanced analog audio as shown below:

Tip
Ring
Sleeve
Tip
Ring

Balanced Audio Output

Tip
NO Ground Here
Sleeve
Tip
NO Ground Here

Unbalanced Audio Output

3/16" (5 mm) MAX.

Do not tin the wires!

CAUTION: For unbalanced audio, connect the sleeves to ground. **DO NOT** connect the sleeves to negative (–) contacts.

COAX

OPTICAL

- **Coax** — Connect a digital audio output device to this coaxial RCA jack (⑧) for S/PDIF signal transmission.
- **Optical** — Connect a digital audio output device to this TOSLINK™ fiber optic connector (⑨) for S/PDIF signal transmission.

6. **Connect control devices.** Connect a computer or control system to one of these AVT ports to remotely configure and control the tuner via the Windows®-based software, SIS™ commands, or the embedded web pages.

- **RS232 port** — For serial RS-232 control, connect a host computer or control system to the Tx, Rx, and ⏚ (ground) pins of this 5-pin captive screw connector (⑪). The default protocol for this port is 9600 baud, 1 stop bit, no parity, 8 data bits, and no flow control.
- **LAN Ethernet port** — Connect the AVT to an Ethernet LAN or WAN via this RJ-45 connector (⑫) to control the tuner via computer using an Internet browser.
- **Config port** — Connect a USB cable (USB A to mini B) between the computer and this USB port (② on the front panel diagram on page 3) to use the Windows-based control software or SIS commands, or to upload firmware.

7. **Apply power** to the AVT by connecting a standard IEC power cord (provided) from a 100 to 240 VAC, 50-60 Hz power source to the AC power receptacle (①).

Locking the Front Panel (Executive Mode)

To prevent accidental changes to settings, you can lock the AVT front panel or IR controls by placing the tuner in lock (executive) mode. While the AVT is in lock mode, RS-232, USB, Ethernet, and IR communication remain available.

- **Lock mode 1** locks all front panel functions. IR, RS-232, and Ethernet control are available.
- **Lock mode 2** locks all front panel functions except volume control. IR, RS-232, and Ethernet control are available.
- **Lock mode 3** locks out all IR access. RS-232, Ethernet, and the front panel controls are available.

1. Press and hold the Menu and Next buttons simultaneously until `Exec Mode Select` appears in the LCD window (approximately 3 seconds).
2. Rotate either Adjustment knob until the desired mode name (`Disable`, `Complete`, `Volume Only`, or `IR Lockout`) is displayed in the LCD window.

To exit lock mode, press and hold the Menu and Next buttons until `Exec Mode Select` is displayed in the LCD window, then rotate either Adjustment knob until `DISABLE` is displayed.

Front Panel Features
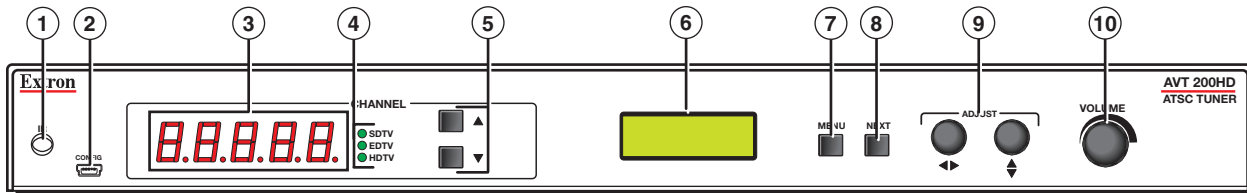

① **IR receiver** — Receives commands via infrared signals from the optional AVT 200HD IR Remote Control. By default, the IR sensor is enabled.

② **Config port** — Connect a USB cable (USB A to mini B) between your computer and this port to configure and control the AVT via SIS commands or the Windows-based control software, and to update the firmware.

③ **LED display** — This 5-digit, alphanumeric LED display indicates the over-the-air TV or CATV channel that is being received (in Tune mode) or the selected channel preset (in Preset mode).

④ **TV format indicator LEDs** — Light to indicate the digital television format of the input signal. Supported resolutions include SDTV (480i), EDTV (480p), and HDTV (720p and 1080i). When no TV signals are detected, none of the LEDs light.

⑤ **Up (▲) and Down (▼) buttons** — Change the channel or preset, depending on the selected operating mode. Each press increments or decrements the number in the LED display (③).

- **In Tune mode (default):** The buttons select channel numbers to switch to channels that have been saved.

- **In Preset mode:** The buttons select the preset numbers to switch to channels that have been saved as presets.

Pressing and holding a button causes the displayed numbers to cycle up or down rapidly. When you release the button, the displayed channel or preset is selected.

⑥ **LCD window** — Displays messages, menu information, and your menu selections

⑦ **Menu button** — Press this button to access the AVT 200HD menu system and step through the menus.

⑧ **Next button** — Within a menu, press this button to step through the submenus.

⑨ **Adjustment knobs** — Within a submenu, turn these horizontal and vertical Adjustment knobs to select options from the submenu, such as the output resolution or the RF source (Air or Cable).

⑩ **Volume knob** — Turn this knob to change the output volume from 0% (muted) to 100%. This knob adjusts volume for analog and PCM digital output only. It does not affect Dolby surround digital (AC-3) volume.

Configuring the AVT 200HD Using the Front Panel

Menu selections are displayed on the front panel LCD screen (see the menu flow diagram at right). To use any menu, press the Menu button repeatedly until the desired menu is displayed on the LCD screen. Press the Next button repeatedly until the desired submenu is displayed. Rotate the appropriate Adjustment knob to select an item from the submenu. To exit a submenu and return to the main menu, press the Menu button at any time.

1. Place the AVT in tune mode:

   a. From the Output Configuration menu, press Next until the Tuner Mode submenu is displayed.

   b. Rotate either Adjustment knob to select `Tune`.

2. Select the radio frequency (RF) source:

   a. Press the Menu button once to display the Channel Setup menu, then press the Next button once to display the RF Source submenu.

   b. Rotate either Adjustment knob to select a source: `Air`, `Cable Standard`, `Cable HRC`, or `Cable IRC`.

3. Scan for channels:

   a. From the Channel Setup menu, press Next until the LCD window displays `Press Up button to start scan`.

   b. Press the Up (▲) button on the front panel to start the scan.

3
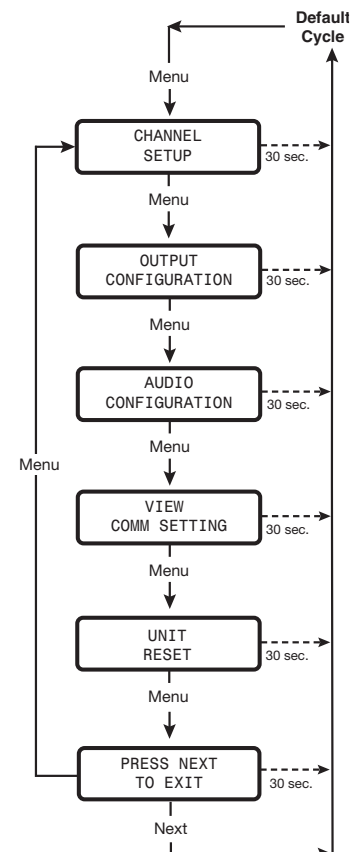
4. From the Output Configuration submenus, use the Adjustment knobs to select the output resolution, the display type (4X3 or 16X9), and the display mode (Fill, Follow, or Zoom).

5. If needed, use the Audio Configuration submenus to select the digital audio type and the language for a second audio program (SAP).

6. Configure the comm port settings (serial port baud rate, IP addresses, and DHCP mode):

   a. From any View Comm Setting menu screen, press and hold the Next button, then press and hold the Up (▲) and Down (▼) buttons simultaneously. Hold all three buttons until the Edit Comm Setting menu appears (2 seconds).

   b. On the Edit Comm Setting submenus, rotate the horizontal Adjustment knob (◄►) to move the blinking or angle brackets to the parameter to be changed, then rotate the vertical Adjustment knob (♦) to select a value.

7. Press the Up or Down arrow button to select a channel.

8. Turn the Volume knob to adjust the volume.

9. If desired, use the Closed Caption submenu of the Output Configuration menu to turn closed captioning on or off.

10. Use SIS commands, the Windows-based control software, or the embedded web pages to mute or unmute the audio or video, configure the closed caption display, and set up the V-chip program blocking as desired.

Simple Instruction Set (SIS) Commands

When setting up the AVT 200HD, you can issue SIS commands from your computer via RS-232 or a LAN connection as an alternative to the front panel controls. See the *AVT 200HD Series User Guide* for a complete list of available SIS commands.

Command	ASCII command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Select TV standard	[Esc] [X4] TVST ←	Tvst [X4] ↵	Set the TV format [X4] for the incoming RF signal. For [X4]: Ø = over-the air, 1 = cable standard 2 = cable HRC, 3 = cable IRC
Begin channel scan	[Esc] 1TVSC ←	Tvsc1 ↵	Start scanning for available channels.
Stop channel scan	[Esc] ØTVSC ←	TvscØ ↵	Stop scanning for channels.
View tune mode channel list	[Esc] TVCH ←	T [X1].[X2] ↵ T [X1].[X2] ↵ . . . ↵ ↵ — View a list of channels not hidden.
View all presets	[Esc] TVPR ←	PØ1 • T [X1].[X2] • N*name*↵ . . . P99 • T [X1].[X2] • N*name* ↵ ↵ — View a list of all saved presets.
Select tune mode	[Esc] ØTVTM ←	TvtmØ ↵	Place the tuner in tune mode.
Select preset mode	[Esc] 1TVTM ←	Tvtm1 ↵	Place the tuner in preset mode.
Select channel by number (in tune mode)	[X1] * [X2]T ←	Tvct[X1].[X2] ↵	Select channel [X1].[X2]. [X1] = major number; [X2] = minor number.
Select channel by preset (in preset mode)	[X25] T	TvprR [X25]*[X1].[X2] ↵	Select preset [X25] (which tunes to channel [X1].[X2]).
Save a specific channel as a preset	[Esc] S [X1]*[X2]*[X25] TVPR ←	TvprS [X25]*[X1].[X2] ↵	Save channel [X1].[X2] to preset [X25].
Set output resolution and rate	[Esc] [X26] RATE ←	Rate[X26] ↵	Select output resolution [X26]. For [X26]: 0 = 480i @ 59.54 Hz, 1 = 480p @ 59.94 Hz, 2 = 720p @ 60 Hz, 3 = 1080i @ 60 Hz.
Select CC service	[Esc] C [X7] TVCC ←	TvccC[X7] ↵	Select closed captioning service [X7]. For [X7]: Ø = closed captioning off, 1-6 = closed captioning services 1-6.
Enable or disable V-chip for TV	[Esc] T[X32]*[X10] VCHP ←	VchpT[X10] ↵	Enable or disable the V-chip for blocking TV shows. For [X10]: Ø = off, 1 = on. [X32] = Current V-chip access PIN number (default is ØØØØ).